

(No Model.)

F. D. VAN ARSDALE.
MACHINE FOR STRAIGHTENING WIRE.

No. 568,386.

Patented Sept. 29, 1896.

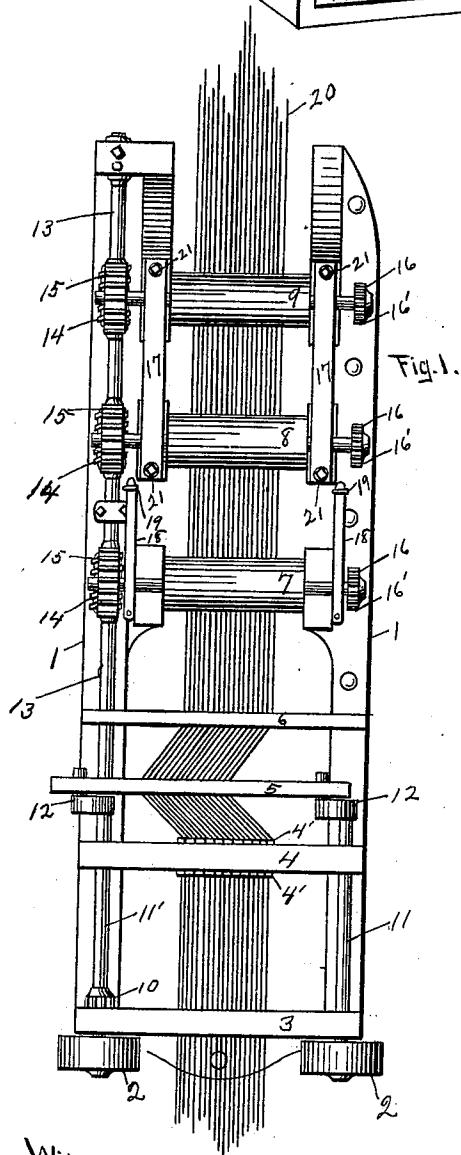
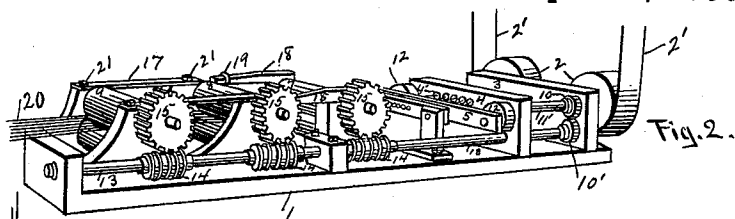
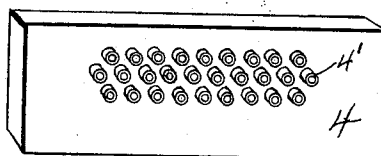


Fig. 3.



Witnesses.
Fred'k J. Baker
John L. Miner

Inventor
Frank D. Van Arsdale
Per:

Harris & Baldwin.
Attorneys

UNITED STATES PATENT OFFICE.

FRANK D. VAN ARSDALE, OF FALCONER, NEW YORK, ASSIGNOR TO CHARLES E. WEEKS AND PRESTON C. HOUSTON, OF JAMESTOWN, NEW YORK.

MACHINE FOR STRAIGHTENING WIRE.

SPECIFICATION forming part of Letters Patent No. 568,386, dated September 29, 1896.

Application filed May 25, 1896. Serial No. 593,049. (No model.)

To all whom it may concern:

Be it known that I, FRANK D. VAN ARSDALE, a citizen of the United States, residing in Falconer, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Machines for Straightening Wire; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to make a wire-straightening machine which, while capable of straightening one wire, will also straighten any number of wires for which the machine may be desired, the number being limited only by the size of the machine and power to run it.

The improvement consists in a number of stationary frames provided with holes for each wire and a series of feed-rolls so arranged on each side of a movable frame provided with holes to receive the wire and hung on a pair of eccentrics, which impart to it a reciprocal and rotary motion, all of which will be readily understood from this specification and the accompanying drawings, in which—

Figure 1 is a plan view of my invention. Fig. 2 is a side elevation of the machine. Fig. 3 is a detailed view of one of the stationary frames with bushed openings for the wires.

Similar numerals refer to similar parts throughout the several views.

The metal bed 1 1 is secured to the top of a suitable bench or table. To this are secured the frames and feed-rolls through which the wires pass. Power is applied to pulleys 2 2 by the one belt 2', the pulleys being supported on the ends of shafts 11 and 11', the shafts having suitable bearings in the stationary frames 3 and 4. These shafts support at their other ends the pair of eccentrics 12 12, which bear and impart an eccentric or reciprocating motion to the movable frame 5. Cog-wheel 10 on shaft 11' drives cog-wheel 10', turning shaft 13, which by worm-gears 14 14 14 and cog-wheels 15 15 15 turn the upper feed-rolls 7 8 9 and the cog-wheels 16 16', thus turning the lower feed-rolls. The pressure on feed-rolls 7 is regulated by a weight suspended by

wires 19 19 to arms 18 18, said weight being beneath the table or bench, (not shown in the drawings,) arms 18 18 resting on the bearing at each end of upper feed-roll 7, it being found that this device works better on this set of rolls than the spring-tension or other devices, though such might be used. The tension of the other two sets of feed-rolls is regulated by the springs 17 17 and four set-screws 21, thus attaining any tension desired in gripping the wires 20.

On account of the special wear from the strong leverage brought to bear on the wire-openings in stationary frame 4, I find it necessary to bush the openings, as shown at 4' in the several views. These bushings consist of hollow bolts with a thread on their outer surface, by means of which they are secured in the frame and which make it easy to replace them with fresh bushings when required. The leverage on openings in frames 3, 5, and 6 not being so great, they do not need bushing. Of course frame 4 might be left plain, but this would not be as well.

In operation the wires from the reels are first threaded through the openings in frames 3, 4, 5, and 6 in succession and between the feed-rolls, as shown, and attached to a suitable rope or steam feed, (not shown,) which aids in drawing the wires through the machine. In starting the machine power is applied by belt 2' to pulleys 2 2, which causes the movable frame 5 to take a swift reciprocating and rotary motion, stretching the wire just beyond a point which would take up all the slack which would naturally occur in the wire as it run through the machine. This stretching process takes out all kinks or unevenness in each separate strand of wire. Pulleys 2 2 at the same time, by cog-wheels 10 10' and the worm-gears and cog-wheels above described, turn the three sets of feed-rolls. Feed-rolls 7 act as a stationary frame beyond stationary frame 6. It will thus be noticed that I have two stationary frames or fixed points of leverage on each side of the movable or stretching frame 5. A regular stationary frame might be put in between frame 6 and feed-rolls 7, but is not necessary, the feed-rolls serving the same purpose.

Instead of two stationary frames each side

of the movable frame, one might be used, but does not do as good work, and I prefer it as shown. It might have one long bearing, but even this I find not as good as two fixed points of leverage on each side of the movable frame. Movable frame 5 is nearer frame 4 than frame 6, and the purpose of this is to have the stretch of the wire between frames 4 and 5, and this is why the leverage is so great on the openings in frame 4.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In wire-straightening machines, having stationary frames, a movable frame or piece, mounted between the stationary frames on a suitable bed, and adapted to receive one or more wires and through which they pass, the movable frame-piece being given a reciprocal motion to stretch the wire, suitable feed-rolls mounted on the bed to hold and draw the wire through the machine, as shown and described.

2. In wire-straightening machines, a reciprocating frame suitably mounted and carrying one or more wires to be straightened, having stationary wire-guides on each side of said frame, and feed-rolls properly mounted to draw the wire through the machine, as shown and described.

3. In wire-straightening machines, a reciprocating frame suitably mounted and carrying one or more wires to be straightened, two stationary guides on each side of said movable frame, feed-rolls properly mounted to draw the wires through the movable frame, and stationary guides, as shown and described.

4. In wire-straightening machines, a reciprocating frame carrying wires to be straightened a uniform distance from a straight line in alternate opposite directions, the station-

ary frame through which the wires pass to the movable frame having bushings through which the wires pass, as shown and described.

5. In wire-straightening machines, the reciprocating frame 5, suitably mounted and carrying one or more wires to be straightened, the movable frame 5 being placed nearer to stationary frame 4 than to stationary frame 6, as shown and described.

6. In wire-straightening machines, the bed 1, 1, on which are mounted the stationary guides 3, 4, which are provided with shafts 11, 11' having pulleys 2, 2 at one end and a pair of eccentrics at the other to reciprocate frame 5, as shown and described.

7. In wire-straightening machines, the reciprocating frame 5 suitably mounted as shown, in combination with shaft 13, provided with worm-gears 14, 14, 14 to drive feed-rolls 7, 8, 9, substantially as shown and for the purpose set forth.

8. In wire-straightening machines having bed 1, 1, suitably-mounted driving-pulleys 2, 2, stationary frames or guides 3, 4, reciprocating frame 5 carrying one or more wires to be straightened, stationary frame or guide 6 through which the wires are again brought into line, feed-rolls 7, 8, 9 to hold and assist in drawing the wires through the machine, gears 10, 10, driving-shaft 13 having worm-gears 14, 14, 14, tension-springs 17, 17, and weight-arms 18, combined to operate in the manner shown and for the purpose set forth.

In testimony that I claim the foregoing I hereby sign my name in the presence of two witnesses.

F. D. VAN ARSDALE.

Witnesses:

N. M. DAY,

J. M. SHEFFIELD.